

VitroCap[®]N

Micronutrients
for the vitreous body
of the eye



**VitroCap[®]N –
The non-surgical
alternative to
reassurance!**



Food supplement designed to support eye health

VitroCap N – to maintain healthy vision

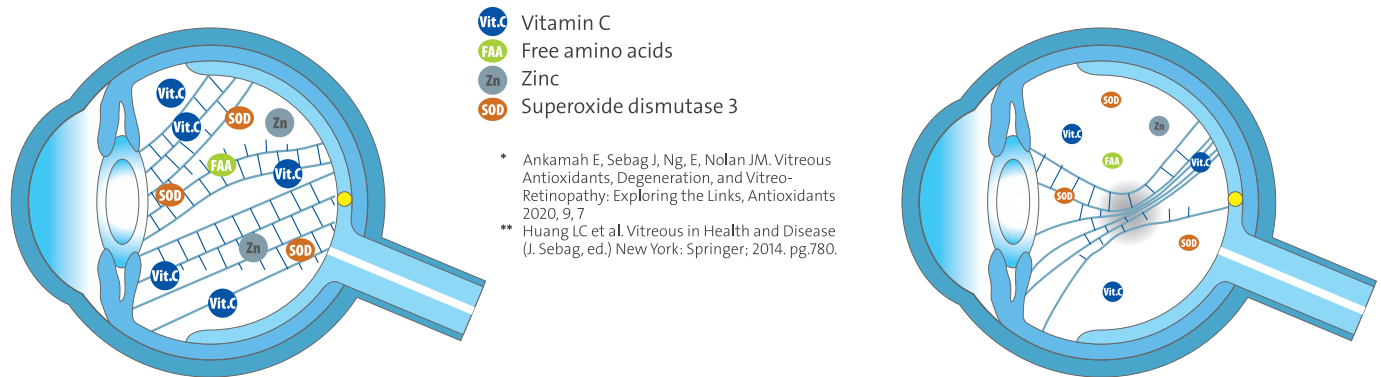
- The normal metabolic process of any tissue produces unstable free radicals, which if produced in excess, in a way that overwhelms the body's ability to regulate them, gives rise to a condition known as oxidative stress.
- Oxidative stress is exacerbated in the presence of blue light (a component of visible light [sunlight]). The eye (along with our skin), is the only organ that is exposed to sunlight and its high-energy rays, thus making it more susceptible to oxidative stress.
- A diet rich in specific micronutrients contributes to maintaining the balance and integrity of collagen fibres and the vitreous body.

Micronutrients and zinc-containing enzymes (SOD)* and collagen fibres** found within the vitreous body

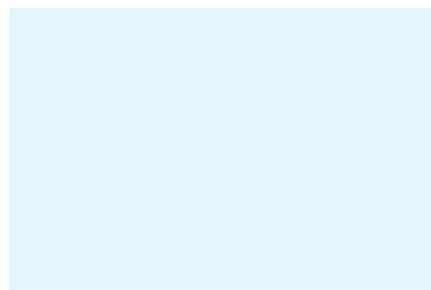
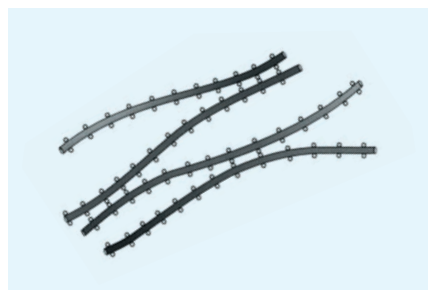
(simplified schematic representation based on E. Ankamah and J.M. Nolan* and L.C. Huang**)

collagen fibres (normal)

collagen fibres (clumped, floaters)



Stations of the clumps of the collagen fibres in the vitreous body



Normal:

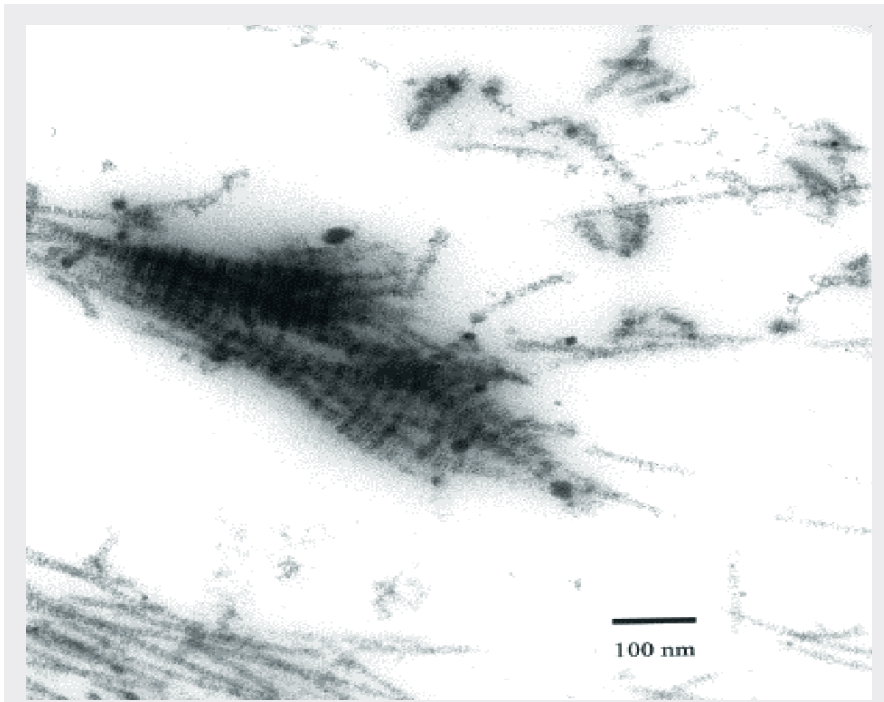
Loosely located collagen fibres with wide spaces for water and hyaluronic acid

Early stage of clumps:

Increased number of fibre connections with reduction of the spaces for the deposit of water and hyaluronic acid

Late stage of clumps and degeneration:

Formation of conglomeration of fibre – shadows cast on the retina are perceived as floaters. Fibres which are now missing in other areas, lead to the dissolution of the vitreous fluid.



Composition of the vitreous body:

- 98% Water
- approx 2% Hyaluronic acid
- Net of collagen fibers (<< 1%)

Fig: electron microscope image of vitreous body section of a 76 years old man Lateral Aggregation of the collagen fibrils. After Bishop et al 2000¹

Mode of action of dietary support for the vitreous body

1 Inhibition of the glycation of collagen fibres

- L-Lysine inhibits the glycation by 76%^{*2}, also acts as a chemical chaperone, a protein required for the proper folding and/or assembly of another protein or protein complex.^{*11}
- Flavonoids (Hesperidin) significantly inhibit the collagen fibres from forming a meshwork.^{*3}
- Zinc has shown antiglycation properties.^{*12}

2 Modulation of the degrading enzymes of hyaluronic acid and collagen

- Procyanidines from grape seed extract (*Vitis vinifera* L.) modulate the activity of collagenase, hyaluronidase and elastase.^{*4, 5}

3 Inhibition of the oxidative damage of the collagen fibres

- Ascorbic acid and procyanidine are powerful antioxidants in an aqueous environment.^{*5, 6, 7}
- Zinc exert its antioxidative effects by protecting sulfhydryl groups from oxidation.^{*8}
- Zinc acts as a co-factor for important enzymes involved in the proper functioning of the antioxidant defense system.^{*9}

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VitroCap®N

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1 Capsule
daily

Nutrition information

	per daily dose 1 capsule	%NRV*
Zinc	5 mg	50%
Vitamin C	40 mg	50%
Grape seed extract	26.3 mg	**
of which proanthocyanidins	25 mg	**
Citrus fruit extract	100 mg	**
of which bioflavonoids as Hesperidin	60 mg	**
L-lysine	125 mg	**

* NRVs Nutrient Reference Values in average adults

** NRV not established



gluten free lactose free

Directions for use: Take one VitroCap®N capsule daily with water and after food for a minimum of 3 to 6 months.

Ingredients: L-lysine hydrochloride, citrus fruit extract (Citrus aurantium L.), capsule shell (coating agent: hypromellose, colouring food: spirulina and apple concentrate, invert sugar), filler: microcrystalline cellulose, L-ascorbic acid (vitamin C); grape seed extract (Vitis vinifera L.), Zinc oxide, anti-caking agents: magnesium salts of fatty acids, silicon dioxide

VitroCap®N is designed to supplement your diet to help support the eye's need for specific micronutrients. VitroCap®N capsules contain precious phytochemicals from grapeseed and citrus fruit extracts, vitamin C, zinc, and L-lysine.

We will be happy to advise you!

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